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FOLEY AND LARDNER
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER

NGUYEN, CHAU M

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 07/22/2004

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/960,722

Applicant(s)

FEINBERG ET AL.

Examiner

Chau M Nguyen

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date Z.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

1. The illustration of figure 8 and paragraph [0063], lines 6-11, page 12 , depict the "eye" diagram. In the Brief Description Of The Drawings Section, page 6, paragraph [0024], discloses "... a block diagram of a second exemplary embodiment..."

It is unclear and confusing. Appropriate correction is required.

2. Again, in the Brief Description Of The Drawings Section, paragraphs [0028] and [0030] relate to figures 12 and 14, respectively. Both indicate the same "...block diagram of a sixth embodiment...". It is not clear.

Similarly, paragraphs [0029] and [0031] relate to figures 13 and 15, respectively. Both indicate the same "...block diagram of a seventh exemplary embodiment...".

It is unclear and confusing.

Appropriate correction is required.

Double Patenting

3. Claims 1-12 and 20-22 provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3-5, 7-11, 13-16 and 23-25 of copending Patent Application No. 09/960,699 (Hereinafter "Application 699"). Although the conflicting claims are not identical, they are not patentably distinct from each other because:

As claim 1, Application 699' (claim 1) discloses a wavelength division multiplexed (WDM) optical system for performing steps comprising:

providing a WDM optical signal into an optical fiber having a first end and a second end (Application 699', claim 1, lines 1-2);

amplifying the WDM optical signal propagating along the optical fiber (claim 1, lines 3-4; and

supplying power for amplification from a power cable having at least one end terminated between the first end and the second end of the optical fiber (claim 1, lines 5-7).

As claim 2, Application 699', claim 3, discloses the power cable is terminated at about a midpoint of the optical fiber.

As claim 3, Application 699', claim 4, discloses the power cable is terminated at about a midpoint of the optical fiber.

As claim 4, Application 699', claim 5, discloses the first end of the power cable is connected to a positive voltage supply and the second end of the power cable is connected to a negative voltage supply.

As claim 5, Application 699', claim 7, discloses the power for amplification supplies at least 10,000 watts of total power for amplification.

As claim 6, Application 699', claim 8, discloses the optical fiber is at least 9000 km in length.

As claim 7, Application 699', claim 9, discloses monitoring optical signal quality of the WDM optical signal propagating along the optical fiber at a site of power termination.

As claim 8, Application 699', claim 10, discloses adjusting a gain profile of the WDM optical signal propagating along the optical fiber at a site of power termination.

As claim 9, Application 699', claim 11, discloses:

filtering out at least one channel and fewer than all channels of the WDM optical signal propagating along the optical fiber (claim 11, lines 3-5) ; and

inserting at least one other channel of the WDM optical signal propagating along the optical fiber (claim 11, lines 5-6),

wherein the steps of filtering out at least one channel and inserting at least one other channel are performed at a site of power termination (claim 11, line 7).

As claim 10, Application 699', claim 13, discloses splitting the optical fiber into a first branch path and a second branch path at a site of power termination.

As claim 11, Application 699', claim 14, discloses amplifying the WDM optical signal propagating along the optical fiber is performed by at least one Raman amplifier.

As claim 12, the claim 15 of Application 699' discloses supplying power for amplification supplies power to only one end of the power cable.

As claim 20, Application 699' discloses a wavelength division multiplexed (WDM) optical system for performing steps comprising:

providing a WDM optical signal into a long-haul optical fiber terminated solely at a first end and a second end (claim 23, lines 1-5);

amplifying the WDM optical signal propagating along the optical fiber in a plurality of line units (claim 16, lines 4-5); and

supplying power for amplification via a power cable to the plurality of line units (claim 23, lines 1-3),

wherein the power cable is positioned adjacent to the optical fiber (claim 23, line 6),
wherein the power cable is connected to the line units (claim 23, lines 7-8), and
wherein the power cable is terminated at a site of power termination located between the first end and the second end of the optical fiber (claim 23, lines 9-10).

As claim 21, Application 699', claim 24, discloses the power cable supplies at least 10,000 watts of power to the line units.

As claim 22, of Application 699', claim 25, discloses the line units comprise Raman amplifiers.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 13, 14, 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Spagnoletti et al. (Hereinafter "Spagnoletti") (U.S. Pat. No. 6,496,626 B2).

As claim 13, Spagnoletti discloses a method for providing power via a power cable to optical line units for amplification of a WDM optical signal propagating along an optical fiber comprising the steps of:

providing said optical fiber (see fig. 4) having a first end (end 10) and a second end (end 20), said fiber being optically terminated solely at the first end and the second end (col. 5, lines 13-15); and

terminating at least one end of the power cable between a first plurality of line units and a second plurality of line units connected to said optical fiber and said power cable (see fig. 2, col. 5, line 65 – col. 6, lines 2).

As claim 14, Spagnoletti discloses the power cable length is less than the total length of the optical fiber (col. 2, lines 36-39).

As claim 19, Spagnoletti discloses the amplifying the WDM optical signal propagating along the optical fiber is performed by at least one Raman amplifier (col. 5, lines 47-51).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-6, 11, 12, 15, and 20-22 are rejected under 35 U.S.C. 103(a) as being obvious over Spagnoletti et al. (Hereinafter "Spagnoletti") (U.S. Pat. No. 6,496,626 B2).

As claims 1 and 15, Spagnoletti discloses a method of transmitting a wave division multiplexed (WDM) optical signal, comprising the steps of:

providing an optical fiber (120, fig. 3) (col. 5, lines 42 and col. 2, lines 57-58) having a first end and a second end (10 and 20, respectively, fig. 4) (col. 5, lines 14-15);

amplifying the WDM optical signal propagating along the optical fiber (by 30, fig. 4) (col. 5, lines 15 and lines 47-50); and

supplying power for amplification from a power cable having at least one end terminated between the first end and the second end of the optical fiber (see. fig. 4).

Spagnoletti does not clearly show a step of providing a WDM optical signal into an optical fiber (as cited in claim 15). However, the system of Spagnoletti is designed for transmitting a WDM optical signal (col. 5, lines 56-59), therefore, it is obvious to one having ordinary skill in the art to have a process or step for providing a WDM optical signal into such fiber in order for WDM optical signal to be transmitted.

As claims 2 and 3, Spagnoletti discloses the power cable length is less than the total length of the optical fiber (col. 2, lines 36-39).

As claims 4 and 12, (as shown in figure 5), the +/- sign in the element 30 indicates the positive/negative voltage level and connection of the element. This indicates the first end of the first power cable is connected to a positive voltage supply, and, in turn, the second end is connected to the negative voltage supply. Such, the power cable is fed from one end.

As claim 5, Spagnoletti shows the power range of the system (col. 5, lines 24-25).

As claim 6, Spagnoletti mentions the length of the optical fiber for communication (col. 1, line 60).

As claim 11, Spagnoletti discloses the amplifying the WDM optical signal propagating along the optical fiber is performed by at least one Raman amplifier (col. 5, lines 47-51).

As claim 20, Spagnoletti discloses a method of transmitting a wave division multiplexed (WDM) optical signal (col. 5, lines 56-59) via an optical fiber having a first end and a second end, comprising the steps of:

providing long-haul optical fiber terminated solely at a first end (end 10, fig. 4) and a second end (end 20) (col. 2, lines 57-58);

amplifying the WDM optical signal (by 30, fig. 4) propagating along the optical fiber in a plurality of line units (col. 2, lines 47-53); and

supplying power for amplification via a power cable to the plurality of line units (col. 5, lines 42-46) ,

wherein the power cable is positioned adjacent to the optical fiber (see fig. 3),

wherein the power cable is connected to the line units (col. 5, lines 42-46), and

wherein the power cable is terminated at a site of power termination located between the first end and the second end of the optical fiber (col. 5, line 65 – col. 6, line 2).

Spagnoletti does not clearly show a step of providing a WDM optical signal into an optical fiber (as cited in claim 15). However, the system of Spagnoletti is designed for transmitting a WDM optical signal (col. 5, lines 56-59), therefore, it is obvious to one having ordinary skill in the art to have a process or step for providing a WDM optical signal into such fiber in order for WDM optical signal to be transmitted.

As claim 21, Spagnoletti shows the power range of the system (col. 5, lines 24-25).

As claim 22, Spagnoletti discloses Raman amplifier (col. 5, lines 47-51).

8. Claims 7, 8, 9, 10, 16, 17, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spagnoletti (U.S. Pat. No. 6,496,626 B2) as applied to claim 1, in view of Aida et al. (Hereinafter "Aida") (U.S. Pat. No. 5,005,937).

As claims 7 and 16, Spagnoletti fails to show step for monitoring optical signal quality of the WDM optical signal propagating along the first optical fiber at a site of power termination. However, Aida discloses step of monitoring the WDM optical signal (by 73, Aida, fig. 9), and (73) is located at in branching element (44). Since both reference are related to wavelength multiplexed optical communication with the utilities of power cable (Spagnoletti, col. 1, lines 33-36 and Aida, col. 9, lines 16-18), therefore, it would have been obvious to one having ordinary skill in the art to associate an optical divider (tap) as taught by Aida into the system of Spagnoletti for monitoring optical signal. One would have motivated for doing this for making sure the level of signal (that associated with amplifier) in order for supporting the subscriber-furnished terminal equipment in receiving program (col. 13, lines 6-14).

As claims 8 and 17, the combination system as described above, Aida also discloses step for adjusting amplifier (by 23, fig. 9) of the optical signal propagating along the first optical fiber (30) at the site of power termination (such as 40, fig. 4), (Aida, col. 12, lines 48-54).

As claims 9 and 18, Aida further discloses:

an add/drop multiplexer (47, fig. 7) (col. 1, lines 38-40), for filtering out at least one channel and fewer than all of the channels of the WDM optical signal propagating along the first optical fiber and

for inserting at least one other channel into the WDM optical signal propagating along the first optical fiber (col. 7, lines 26-38), and

wherein the steps of filtering and inserting at least one channel are performed at a site of power termination (such as 44).

As claim 10, the system as a combination system of Spagnoletti and Aida as described above, further comprising a steps of splitting (by 21₂, fig. 8) the optical fiber into a first branch path (such as branch through 23₁) and a second branch path (such as branch through 23₂) at a site of power termination (such as 44₁) (col. 12, lines 5-21).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Schesser et al. (U.S. Pat. No. 6,414,405 B1) is cited to show method and apparatus for operating cabled-fiber undersea network.

Yamaguchi (U.S. Pat. No. 6,163,084) is cited to show cable branching unit.

Hanynda et al. (U.S. Pat. No. 4,879,762) is cited to show optical repeater and regulated current feed system for the same.


Endo et al. (U.S. Pat. No. 4,495,421) is cited to show optical power supply switching apparatus.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chau M. Nguyen whose telephone number is 703-305-8965. The examiner can normally be reached on Mon-Fri from 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703-305-4726. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

C.M.N.
Jul. 12, 2004


LESLIE PASCAL
PRIMARY EXAMINER